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ABSTRACT

The Discipline Efficacy Scale (DES) was designed to measure personal and general teacher efficacy beliefs about student discipline. A confirmatory factor analysis of the proposed two-factor model was carried out using a sample of 206 junior- and senior-level preservice teacher education students. Goodness of fit measures did not suggest a good fit for the two factor model. The resulting chi square based on 34 degrees of freedom was 181.62 ($p<.001$), the ratio of chi square to degrees of freedom was high (5.34), and the root mean square error of approximation was also high (0.140). Since the proposed two factor model did not provide a satisfactory fit, the item responses were subjected to an exploratory factor analysis. A principal components analysis was used. The scree test and the eigenvalue greater than 1.0 criterion suggested two to four factors. Two, three, and four factor solutions were rotated using both orthogonal and oblique rotations. Based on factor interpretations and simple structure considerations, the three-factor oblique solution was deemed the most appropriate. Only one of the anticipated factors emerged, that of personal teacher efficacy. The remaining two factors will require further development prior to being used for research purposes. An appendix contains the DES instrument. (Author/SLD)

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A Factor Analysis of the Discipline Efficacy Scale

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Abstract

The Discipline Efficacy Scale (DES) was designed to measure personal and general teacher efficacy beliefs about student discipline. A confirmatory factor analysis of the proposed two-factor model was carried out using a sample of 206 junior- and senior-level preservice teacher education students. Goodness of fit measures did not suggest a good fit for the two factor model. The resulting Chi-square based on 34 degrees of freedom was 181.62 (p<.001), the ratio of Chi-square to degrees of freedom was high (5.34), and the root mean square error of approximation was also high (0.140).

Since the proposed two factor model did not provide a satisfactory fit, the item responses were subjected to an exploratory factor analysis. A principal components analysis was used. The scree test and the eigenvalue greater than 1.0 criterion suggested two to four factors. Two, three, and four factor solutions were rotated using both orthogonal and oblique rotations. Based on factor interpretations and simple structure considerations, the three-factor oblique solution was deemed the most appropriate. Only one of the anticipated factors emerged, that of personal teacher efficacy. The remaining two factors will require further development prior to being used for research purposes.

A Factor Analysis of the Discipline Efficacy Scale

Results of the 2000 Phi Delta Kappa/Gallup poll (Rose & Gallup, 2000) of the public's attitudes toward public schools indicated that lack of school discipline ranked second in the list of biggest problems facing the public schools with respondents stating that more student control is needed in schools. The fourth ranked problem was fighting/violence/gangs. The reasons for public concern about student control were not addressed in the report of the survey findings. It may be that the public believes that it is becoming increasingly difficult to deal with the impact of societal problems on student learning; or, it may be that the public believes that teachers lack the skills and confidence to discipline students effectively.

Information about the extent to which preservice teachers possess self-confidence (efficacy) to deal with student discipline problems would be useful to teacher educators. Since the literature addressing the measurement of discipline efficacy is scant, it appears that the development of measures assessing discipline efficacy are needed. Assessment of preservice teachers' discipline efficacy beliefs would provide insights into their perceptions about dealing with student discipline, allowing teacher education programs to address specific discipline situations where preservice teachers lack confidence.

Bailey and Kazelskis (1996) examined personal and teaching discipline efficacy utilizing a five-item scale in which two items assessed personal efficacy (PE) discipline beliefs and three items assessed teacher efficacy (TE) discipline beliefs. Not surpisingly, the Cronbach's alphas associated with the PE and TE scores were low, indicating that more reliable measures of discipline efficacy are needed. The scale examined by Bailey and Kazelskis was based on the conceptualization of self-efficacy developed by Bandura (1977; 1978). Guskey and Passaro

(1994) state that efficacy is generally viewed "as teachers' belief or conviction that they can influence how well students learn, even those who may be considered difficult or unmotivated" (p. 628). Gibson and Dembo (1984) identify two dimensions of efficacy, personal efficacy and teaching efficacy. Personal efficacy refers to "a belief that one has the skills and abilities to bring about student learning (p. 573). Teaching efficacy refers to the "belief that any teacher's ability to bring about change is significantly limited by factors external to the teacher, such as the home environment, family background, and parental influences" (Gibson & Dembo, 1984, p. 574). As a result of research on the concept of efficacy, spanning over 20 years, teacher efficacy has been identified as a variable accounting for individual differences in teaching effectiveness (Gibson & Dembo, 1984). It is possible that efficacy related to discipline may account for differences in teachers' approaches to student control, but research is needed to determine whether this is the case.

Since both efficacy and classroom discipline seem to be important factors influencing teacher effectiveness, instruments designed to measure a teacher's efficacy beliefs about student discipline are needed. The Discipline Efficacy Scale (DES) was developed as part of a large scale study investigating the efficacy beliefs of preservice teachers. The purpose of this study was to investigate the factor structure of the DES and the reliability of the scores derived from the factors.

Method

Participants

Junior- and senior-level preservice teachers (n=206) at two southern universities participated in the study. All participants had been officially admitted to the teacher education

program and were currently enrolled in their first field-experience course required for certification in elementary education. Nearly all of the participants were females (n = 200). Twenty-nine of the participants were African Americans, three were Asian and the remaining participants (n = 174) were European American (i.e., Hispanic American, Asian American, Native American, Mixed Race). The number of participants by age range was: 117 between 18-23 years, 54 between 24-29 years, 15 between 30-35 years, ten between 36-40 years, and nine over 40 years. One participant did not provide his/her age.

Instrument

The Discipline Efficacy Scale (DES) consists of 10 items, based on conceptualizations from the works of Bandura (1977) and Gibson and Dembo (1984). Five items were designed to measure teachers' personal efficacy (PE) beliefs about discipline, and five items measured general teaching efficacy (TE) beliefs about discipline. Personal efficacy items examine the extent to which an individual believes he/she has the skills and abilities to discipline students (Gibson & Dembo, 1984). General teaching efficacy items examine the extent to which an individual believes that any teacher's ability to discipline students ". . . is significantly limited by factors external to the teacher, such as home environment, family background, and parental influences" (Gibson & Dembo, 1984, p. 574).

A six-point, Likert-like scale, ranging from 1 (Strongly Disagree) to 6 (Strongly Agree), was used for responding to DES items. A high score on an individual item indicates that the respondent has a positive belief regarding his/her ability to handle the situation addressed by the content of the item. A copy of the DES is provided in Appendix A.

Procedure

The DES was used as a pre- and post-measure of students efficacy beliefs related to discipline. As a pre-measure, it was administered to preservice teachers prior to beginning their assigned field placements in 8 public schools located in two school districts. Demographic information (i.e., gender, ethnicity, and age range) was also collected at this time. Prior to responding to the DES, preservice teachers were informed that responding to the DES was voluntary and that responses would remain confidential. Participants were further informed that honest responses to the DES would provide the two teacher education programs with information identifying the specific discipline situations where preservice teachers lack confidence so that these discipline situations may be appropriately addressed in coursework.

Preservice teachers conducted their field experiences in classrooms (including grades K-8) where student populations were racially diverse and represented all socioeconomic levels. The field experience lasted approximately 15 weeks with each preservice teacher spending a minimum of 70 hours in his/her assigned classroom. The field experience included plannng and conducting lessons in the areas of reading, language arts, science, math, and social studies, with students being supervised by the classroom teacher and university professors. Throughout the duration of the field experience, the preservice teachers had opportunities to work with individual students, as well as small and large groups of students. The DES was administered as a post-measure following the conclusion of the field experience period, during the week preceding final exams.

Analysis

Confirmatory factor analysis was used to evaluate the viability of the anticipated two

factor model. Several measures were used to assess the model fit: the goodness of fit Chi-square, the ratio of Chi-square to the degrees of freedom, the goodness of fit index (GFI), the adjusted goodness of fit index (AGFI), and the root mean square error of approximation (RMSEA).

Results

The adequacy of the two-factor model was examined using a confirmatory factor analysis using AMOS 4.0. Items 2, 3, 4, 6, and 8 defined the PE factor and items 1, 5, 7, 9, and 10 defined the TE factor. Goodness-of-fit measures did not suggest a good fit for the two-factor model. The resulting chi-square based on 34 degrees of freedom was 181.62 ($p < .001$), the ratio of Chi-square to the degrees of freedom was high at 5.34. Additionally, the GFI and AGFI values were low at .835 and .732, respectively. Finally, the root mean square error of approximation (RMSEA) was high at 0.14 suggesting a poor model fit.

Since the two-factor model did not provide a satisfactory fit, the item responses were subjected to an exploratory factor analysis. A principal components analysis was used. The scree test and the eigenvalue greater than 1.0 criterion suggested two to four factors. Two, three, and four factor solutions were rotated using both orthogonal (Varimax) and oblique (Promax) rotations. A readily interpretable solution with simple structure was not obtained when all ten items were included in the analysis. Examination of the item intercorrelations and the modification indices obtained in the confirmatory factor analysis suggested that item 8 did not fit well with any of the other items. Item 8 which asked about a teacher's confidence in breaking up a fight between two 6th grade girls, correlated highly (.77) with item 4 (confidence in breaking up a fight between two 6th grade boys), but did not correlate well with responses from any of the other items. It was, therefore, decided to drop item 8 from the analysis. With item 8 eliminated

from the analysis an interpretable three factor oblique solution with simple structure was obtained. The resulting pattern and structure coefficients are presented in Table 1.

Insert Table 1 about here

Factor 1 received salient loadings (pattern coefficients) from four of the five items initially thought to define the personal efficacy beliefs dimension. Each item indicated the respondent's beliefs in their ability to maintain discipline in a variety of situations. Therefore, factor 1 was identified as a personal efficacy dimension.

Factor 2 received substantial loadings from items 5 and 7. Item five suggested that student behavior was "strongly influenced by peers," while item seven suggested that "student behavior in the classroom is related to instructional management." Factor 2 appears to imply that the preservice teachers perception that the influence of peers on student behavior could be but is related to appropriate instructional management in the classroom.

Factor 3 received substantial loadings from items 1 and 10. Item 1 was concerned with the preservice teachers' beliefs in the affect of the home environment on student behavior in the classroom, and item 10 was concerned with the preservice teachers' belief as to whether certain children can be disciplined at all. This factor reflects belief in the strog effect of the home environment on a teachers' ability to maintain discipline.

Cronbach's coefficient alpha was obtained for each of the three factors. Alpha was at an adequate level (.78) for factor 1; however, the alpha values were only .46 and .48 for factors 2 and 3, respectively. The low alpha values for factors 2 and 3 were not surprising since each was

defined using only two items.

Discussion

The anticipated personal and teaching discipline efficacy factors were not substantiated. Instead, three factors were found. Factor 1 which was identified as Personal Discipline Efficacy received salient loadings from four of the five items originally used to define the PE factor. The remaining item, item 8, had been eliminated from the analysis due to its high correlation with the responses to item 4 and, its large associated modification index obtained in the confirmatory analysis. The obtained alpha coefficient for factor one was adequate at .78.

The remaining two factors can best be thought of as dimensions of teacher discipline efficacy needing further development and investigation. Each of the factors was defined by only two items, and, not surprisingly, the associated alpha coefficients were quite low. One of the teacher efficacy items used by Bailey and Kazelskis (1996) suggested that both the home and peers were "mainly responsible for student behavior." In the present study, the influence of peers and the home were assessed separately, and each received that highest loading on factors 2 and 3, respectively. This suggests that the preservice teachers may have considered the influences of these two areas to be unique enough to be considered separately. It appears that the measurement of the efficacy beliefs of preservice teachers needs to clearly differentiate between these two perceived sources of teachers beliefs about classroom discipline. Further development of factors 2 and 3 will be needed before they can be used for research purposes to assess these aspects of preservice teachers' discipline efficacy beliefs.

Table 1

Pattern Coefficients, Structure Coefficients, and Component Intercorrelations

	Pattern Coefficients			Structure Coefficients		
	Factor			Factor		
Item	1	2	3	1	2	3
1	.132	.042	.861	.015	.066	.841
2	.825	-.074	-.056	.815	.136	-.178
3	.808	-.053	.009	.793	.152	-.110
4	.655	.031	-.006	.664	.198	-.104
5	-.153	.892	.023	.069	.853	.035
6	.824	.088	.062	.837	.296	-.062
7	.189	.700	-.029	.371	.749	-.065
9	.343	-.032	.327	.286	.051	.276
10	-.251	-.050	.685	-.365	-.121	.723

Component Intercorrelations

	1	2	3
1	1.000	.253	-.148
2		1.000	-.011
3			1.000

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Appendix A

DISCIPLINE EFFICACY SCALE

Last 4-digits of Social Security Number: _____

Directions:
Please read each item carefully, and respond to each item in terms of how you actually feel at the present time. Responses range from **1 = Strongly Disagree** to **6 = Strongly Agree**; circle the number for each item that best represents your feeling. There are no "right" or "wrong" reactions to the statements.

1. The home environment is the main determinant of student behavior in the classroom.

Strongly Disagree					Strongly Agree
1	2	3	4	5	6

2. I can get a student who is disruptive in the classroom back on task.

Strongly Disagree					Strongly Agree
1	2	3	4	5	6

3. I know how to use conflict resolution strategies to resolve conflicts among students.

Strongly Disagree					Strongly Agree
1	2	3	4	5	6

4. I am confident that I can break up a fight between two 6th grade boys.

Strongly Disagree					Strongly Agree
1	2	3	4	5	6

5. Student behavior is strongly influenced by peers.

Strongly Disagree					Strongly Agree
1	2	3	4	5	6

6. I can maintain discipline in the classroom.

Strongly Disagree					Strongly Agree
1	2	3	4	5	6

7. Student behavior in the classroom is related to instructional management in the classroom.

Strongly Disagree					Strongly Agree
1	2	3	4	5	6

8. I am confident that I can break up a fight between two 6th grade girls.

Strongly Disagree					Strongly Agree
1	2	3	4	5	6

9. School discipline problems are minimal when the principal provides strong leadership.

Strongly Disagree					Strongly Agree
1	2	3	4	5	6

10. It is impossible to discipline some children.

Strongly Disagree					Strongly Agree
1	2	3	4	5	6